

***Penstemon absarokensis* (Absaroka Range beardtongue)**

Species Conservation Assessment Update

Title of Assessment: *Penstemon absarokensis* (Absaroka Range beardtongue): A Technical Conservation Assessment, USDA Forest Service, Rocky Mountain Region

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Update Summary: Nine new occurrences of *Penstemon absarokensis* have been entered since the assessment was prepared, along with additional distribution information for some of the 20 occurrences that were previously known. Two were recent discoveries and the rest were based on herbarium specimens, including private collections and records that had not previously been processed. The occurrences do not expand the known range of the species, but fill gaps in distribution. A model of potential distribution has also been made and is presented in this addendum. New and pre-existing references on threats or lack of threats are cited. New photographs of the species and its habitat are available, and are presented in this addendum. New environmental assessments and reports provide evidence of oil and gas exploration at the margin of species' distribution, have become available but do not present new threats to the species.

Distribution: New Information is Available

Taxonomic Status: NA

Agency Status: NA

Other: NA

Significance of Changes Relative to Original Assessment: The new information presented in this addendum represents a significant change to the number of known occurrences of *Penstemon absarokensis*. The development of a distribution model and newly available photos of the species and habitat are important new developments for the conservation and management of this species. The new occurrences and other information have not resulted in a change of conservation status rank or agency status. The description of the range of the species presented in the assessment is unchanged because the new occurrences are within the known range of the species. The evaluation of threats presented in the assessment is still relevant and accurate. The new information indicates that a revision of the published assessment is not needed at this time.

Positive Findings of New or Updated Information and Their Sources

(Note: The Table A checklist attached to this update provides a summary of all sources consulted)

Source 1

Dixie Environmental Services Company. 2004. Environmental assessment of the Clark 3D Geophysical Survey, Park County, WY. Prepared for the Bureau of Land Management and the USDA Forest Service. Magnolia, TX.

Summary of New Information

The environmental assessment for energy exploration (Dixie Environmental Services Co. 2004) finds that the proposed 3D geophysical survey for oil and gas exploration has limited potential affects on sensitive plant species like *Penstemon absarokensis* because there is limited potential

habitat for this species in the proposed project area at low elevations in the eastern end of the North Fork valley, and most impacts could be avoided by the slope restrictions that are placed on exploration. Oil and gas exploration and development had not previously been identified as potential threats.

Relevant Sections of the Conservation Assessment Affected by the Updates

Add text to Conservation – Threats

Source 2

Fertig, W. 1995. Report on the potential vulnerability of Shoshone National Forest Candidate and Sensitive plant species to livestock grazing. Unpublished report prepared for Shoshone National Forest by the Wyoming Natural Diversity Database, Laramie, Wyoming.

Summary of New Information

The grazing report (Fertig (1995) provides the same information as later reports that are already cited in the assessment. It is the first report to suggest that suggest livestock grazing of *Penstemon absarokensis* is infrequent because it occupies sparsely-vegetated, rugged habitat that is usually not contiguous with productive rangeland, and is only secondarily affected by livestock and pack animals when its habitat is crossed by trails. Wildlife use is reported, indicating that the species is palatable.

Relevant Sections of the Conservation Assessment Affected by the Updates

Add citation to Conservation – Threats

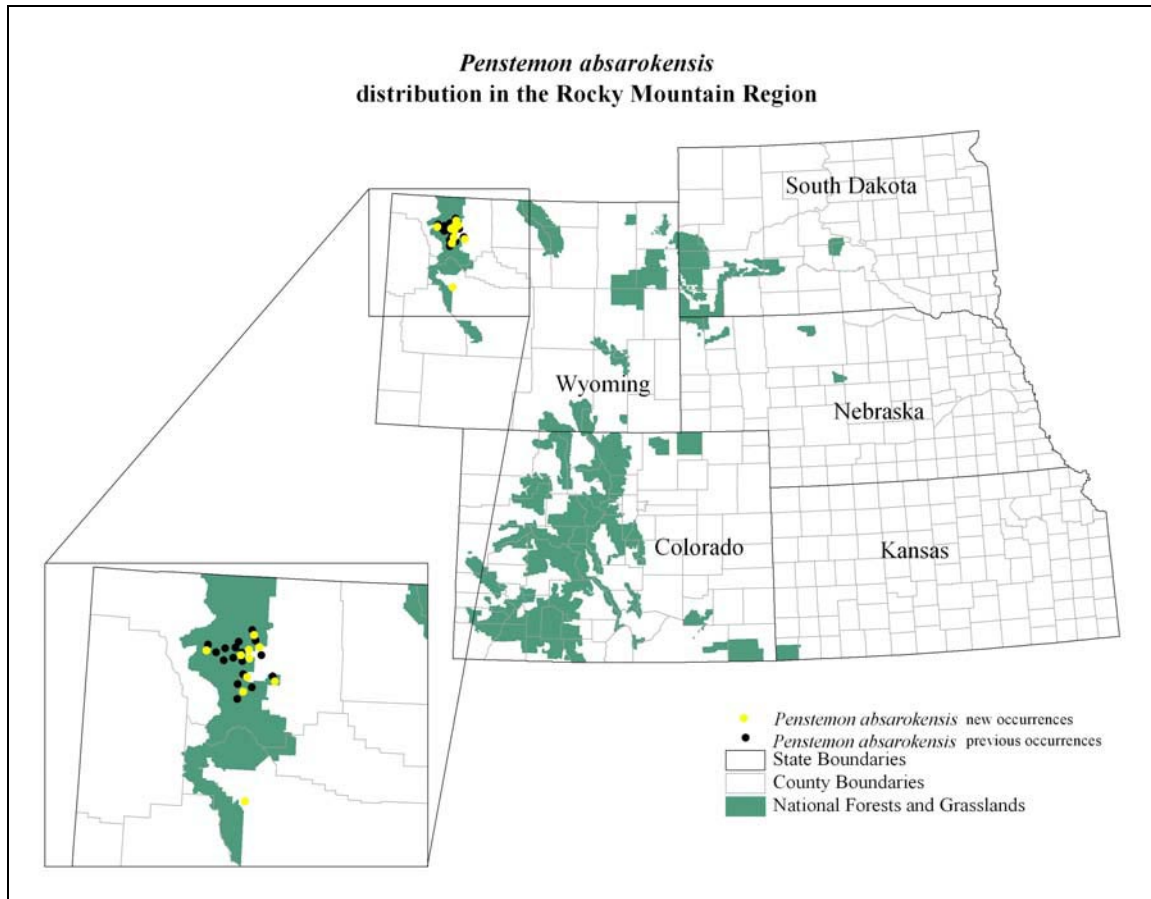
Sources 3 and 4

Taylor, A., K. Taylor, B. Heidel and J. Handley. 2005. North Fork sensitive plant surveys on Shoshone National Forest. Prepared for Shoshone National Forest, Cody, WY. Wyoming Natural Diversity Database, University of Wyoming, Laramie, WY.

Taylor, A., K. Taylor, B. Heidel and J. Handley. 2006. Wood River and North Fork sensitive plant surveys on Shoshone National Forest. Prepared for Shoshone National Forest, Cody, WY. Wyoming Natural Diversity Database, University of Wyoming, Laramie, WY.

Summary of New Information

The two reports by Taylor et al. (2005, 2006) expand known distribution of *Penstemon absarokensis* on Shoshone National Forest, including new occurrences and expansions of prior occurrences. The detailed field forms are not part of the report but integrated in the Wyoming Natural Diversity Database records (separate new information). They further indicate that prescribed burn and mechanical treatment project plans on the Shoshone National Forest are not likely to affect *Penstemon absarokensis* habitat that lies within the proposed management unit boundaries except as its habitat extends directly to forest borders, and as proposed treatments may have secondary effects (erosion, weeds). These projects also entailed consultation with a local authority (Erwin Evert) to ensure that all collections he has made are entered. The field surveys resulted in new collections (deposited at RM) and new photographs of the species and its habitat (below). This project resulted in additions to the tables of occurrences and habitat conditions (table additions are attached.) It also resulted in changes to the distribution map (below).



Updated distribution map for *Penstemon absarokensis*

Relevant Sections of the Conservation Assessment Affected by the Updates

Add information to Table 1 and replace the distribution map in the section on Management status and natural history – Distribution and abundance.

Add text in the section on Conservation – Threats

Consider whether to add photos to the section on Management status and natural history sections on Classification and description and on Habitat. Some of the available photos are reprinted on the following page. They are also available as jpg files.

Source 5

U.S. Department of Agriculture. Forest Service. December 2005. North Fork Vegetation Management Project Final Environmental Assessment. Shoshone National Forest, North Zone. Cody, Wyoming.

Summary of New Information

The environmental assessment for vegetation management (USDA Forest Service 2005) finds that the proposed prescribed burn and mechanical treatments for fuel hazard reduction in the North Fork project area will not impact sensitive species like *Penstemon absarokensis*, with the addition of small adjustments to project boundaries to avoid potential impacts.

Relevant Sections of the Conservation Assessment Affected by the Updates

Add text to the section on Conservation – Threats.



Penstemon absarokensis. Photograph by Amy Taylor, 14 June 2004.



Penstemon absarokensis. Photograph by Amy Taylor, 17 June 2004.



Penstemon absarokensis habitat. Photograph by Amy Taylor, 22 June 2004.



Penstemon absarokensis. Photograph by Amy Taylor, Note browsed stem (right), 6 July 2004.



Penstemon absarokensis. Photograph by Amy Taylor, June 2005.



Penstemon absarokensis habitat. Photograph by Amy Taylor, July 2005.

Source 6

Wyoming Natural Diversity Database. March 2006. Element Occurrence Records for *Penstemon absarokensis*. Laramie, Wyoming.

Summary of New Information

The new and updated occurrences provide added distribution information, abundance information, and habitat details (Wyoming Natural Diversity Database 2006). It provides more detail than the Shoshone National Forest reports and a synthesis of the raw data recorded on sensitive species survey forms.

Relevant Sections of the Conservation Assessment Affected by the Updates

Add text to Table 2 and to the text in the section on Management status and natural history – in subsections on Distribution and abundance and on Habitat

Source 7

Rocky Mountain Herbarium. March 2006. Specimen vouchers and collection labels for *Penstemon absarokensis*. University of Wyoming, Laramie, Wyoming.

Summary of New Information

Two specimens have been added to the *Penstemon absarokensis* folders not previously considered or corresponding with other references. They represent a new occurrence and the voucher information added to an existing occurrence. The data has been incorporated in occurrence records maintained by the Wyoming Natural Diversity Database.

Relevant Sections of the Conservation Assessment Affected by the Updates

Add text to Table 2 and to the text in the section on Management status and natural history – in subsections on Distribution and abundance and on Habitat

Source 8

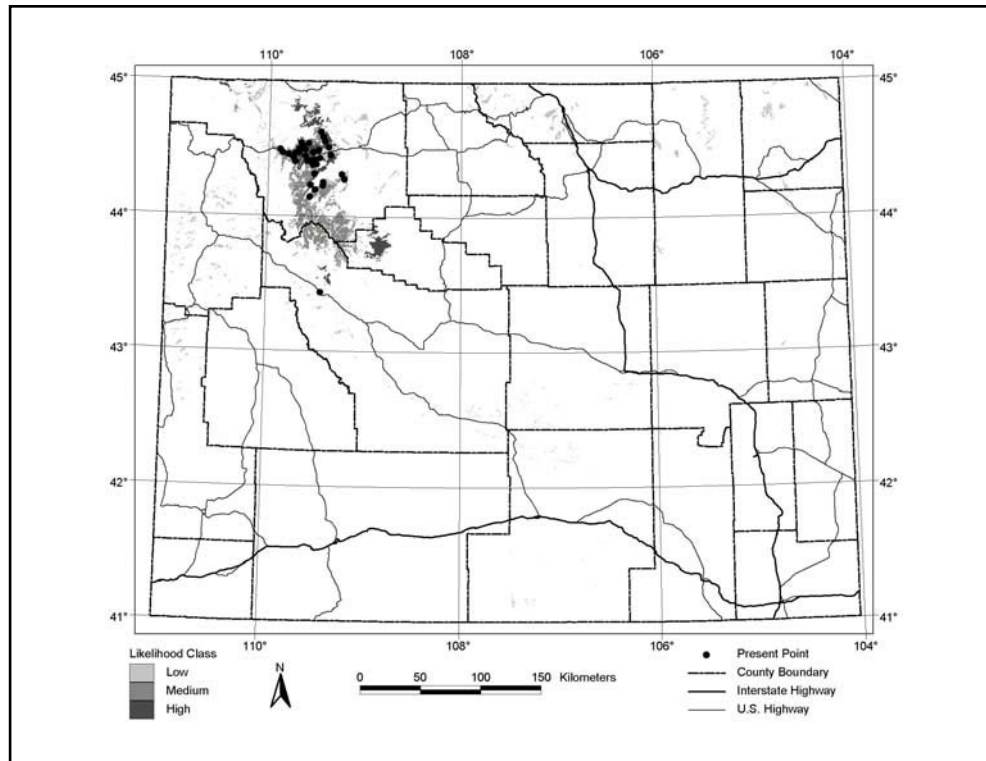
Fertig, W. and R. Thurston. 2003. Modeling the Potential Distribution of BLM Sensitive and USFWS Threatened and Endangered Plant Species in Wyoming. Report prepared for the Bureau of Land Management - Wyoming State Office by the Wyoming Natural Diversity Database - University of Wyoming, Laramie, WY.

Summary of New Information

The modeling report (Fertig and Thurston 2003) provides a map and shapefiles for modeling the potential distribution of *Penstemon absarokensis* using a classification tree model based on positive and negative data. Primary environmental characteristics that correlate with positive and negative distribution data in the classification tree model include specific values for: bedrock geology, surface geology, number of frost-free days, soil, relief, and January temperature and shortwave radiation. It suggests a high likelihood of *Penstemon absarokensis* distribution centered in the Absaroka Range and the Owl Creek Mountains; it is not currently known in the latter. All other mountain ranges have low likelihood of *Penstemon absarokensis* distribution.

Relevant Sections of the Conservation Assessment Affected by the Updates

Management status and natural history – Distribution and abundance. Address the primary environmental sorting characteristics identified in the predicted distribution model for the Habitat subsection.



Predicted distribution of *Penstemon absarokensis* (Fertig and Thurston 2003)

Additional Unabstracted Sources – *post*-Assessment

(citations post-dating Assessment publication that refer to the target genus but were determined by the reviewer to contain no information requiring an update of the original assessment)

We considered but did not abstract one environmental assessment for a proposed pipeline project in Park County but outside the species' known range, prepared for the Bureau of Land Management, in which *Penstemon absarokensis* was named as a species of interest:

Dixie Environmental Services Company. 2005. Environmental assessment for Bennett Creek Pipeline Project. Prepared for the Bureau of Land Management. Cody, Wyoming.

We considered but did not abstract one recent publication on pollination syndromes in *Penstemon*, which are potentially pertinent indications of the pollinator syndromes and other pollination research in the *Glabri* section:

Wilson, P., M. C. Castellanos, J.N. Hogue, J.D. Thomson and W.S. Armbruster. 2004. A multivariate search for pollination syndromes among penstemons. *Oikos* 104(20):345-361.

We considered but did not abstract one Forest Plan Amendment for Grizzly Bear Conservation for the Greater Yellowstone Area National Forests Draft Environmental Impact Statement, which mentioned *Penstemon absarokensis* in a Forest Service Sensitive Plant Species List. Available on the web at: http://www.fs.fed.us/r1/wildlife/igbc/Subcommittee/yes/YEamend/gb_internet.htm

While there is no new information on the genetics of *Penstemon absarokensis* in the published literature, leaf material was collected for a genetics researcher initiating work in the *Penstemon* genus. There are no immediate plans to work with this material, but the species may be considered in future genetics studies at the laboratory of Dr. C.A. Buerkle, working at the University of Wyoming (Botany Department).

We reviewed but did not incorporate new 2004-2005 photographs in addition to those that are reprinted with this addendum that show *Penstemon absarokensis* in different phenological stages (vegetative, bud, fruit), and photos that appear to show grazed stems (in addition to the 2004 photo reprinted in this addendum).

Checklist of Sources Consulted for Updates to *Penstemon absarokensis* Conservation Assessment

Guidelines for Producing Updates

Sources of information relevant to review of this Technical Conservation Assessment for updates include databases, experts, personal communications, published and unpublished literature. Positive results are discussed in detail in the Summary of Addendum to the Technical Conservation Assessment.

Internet Literature Searches: The minimal search for each update consists of Google Scholar, Federal Register, plus a minimum of three other available online literature databases. Search terms include at a minimum: species common name, genus, and recent synonyms. Other keywords will be used at the discretion of the updater (e.g., passerine, wetland, rodent). Searches will be constrained to the time beginning two years prior to publication of the Technical Conservation Assessment to the present.

Two attempts were made to contact experts and agency personnel.

Table A. Sources of information consulted for updates to the Species Conservation Assessment.

Source Category	Source/ Name	Date	Results
Internet based literature databases	Google	4/5/2006	New sources represented by several horticultural sites for search term: <i>Penstemon absarokensis</i> , <i>Penstemon</i> , and <i>absarokensis</i> . No new information.
	Google Scholar	2/23/06	Identified WYNDD reports and two environmental assessments, including previously-cited references. Abstracted. See Sources 1 and 5.
	Federal Register	4/4/2006	Search term: <i>Penstemon absarokensis</i> . No mention.
	Scopus	4/4/2006	Mentioned in species list of a draft EIS grizzly bear plan. Cited but not abstracted.
	Web of Science	4/5/2006	No new sources for search term: <i>Penstemon absarokensis</i> , <i>Penstemon</i> , and <i>absarokensis</i> .
	WorldCat	4/5/2006	No new sources for search term: <i>Penstemon</i> .
	Biological Abstracts	4/5/2006	Identified recent pollination research. Cited but not abstracted
Reports (WYNDD report to USFS)	Taylor, A., K. Taylor, B. Heidel and J. Handley. 2005, 2006.	3/14/06	The project produced two new records and additional management information; expanding or updating many more. New photographs are added. See Sources 3 and 4.
Reports (WYNDD report to USFS)	Fertig 1995	3/15/06	Represented the first discussion of species' response to grazing. See Source 2.
Reports (WYNDD to BLM)	Fertig and Thurston 2003	3/15/06	Produced potential distribution model. See Source 8.
NatureServe affiliate program databases and personnel	WYNDD database and bibliographies	3/15/06	Represented the compilation and update of new occurrence information. See Source 6.
Federal Agency Personnel	Kent Houston, Shoshone NF	3/15/06	Provided the citation for the FS EA and confirmed that there is not additional information.
Primary experts	Erwin Evert, independent botanist - collection records	3/15/06	He provided collection records in Sept 2004, which represented several new records (most deposited at RM).
Museums and Herbaria	Rocky Mountain Herbarium (RM)	3/30/06	Several new records. See Source 7.

Source Category	Source/ Name	Date	Results
Original Author	William Jennings	3/27/06	Confirmed that authors have not identified new information. Commented on addendum update and merit of retaining the original document as a benchmark.
Research-in-progress	Dr. C.A. Buerkle, genetics researcher	2/20/06	Responded that he does not have immediate plans to work with the <i>P. absarokensis</i> material in genetics research.
State Agencies (e.g., WY Game and Fish, CDOW)	None		
Internal USFS Intranet search	None		
Announcement from R2 to all FS personnel (including species list)	See: federal agency personnel contacts		This species is restricted to Shoshone NF, so direct contact with the Forest met the need for agency consultation.

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